



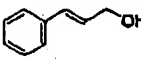
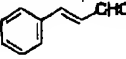
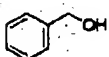

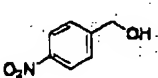
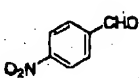
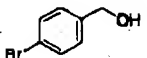
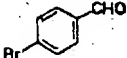
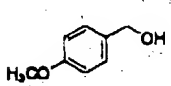
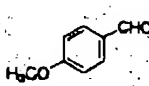
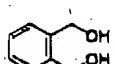

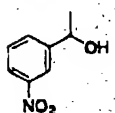
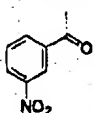
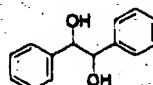
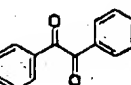
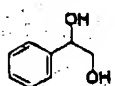
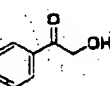
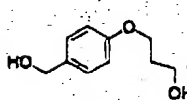
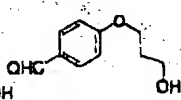


Reagents and conditions: (a) (i) SOCl_2 , heat, (ii) CH_3OH , heat, 100%; (b) H_2 (55 psi), Pd-C , CH_3OH , 100%; (c) (i) NaNO_2 , HCl , $0-5^\circ\text{C}$, (ii) KI , 91%; (d) (i) NaOH , $\text{THF-H}_2\text{O}$ (3:1 v/v), (ii) aq. HCl , 93%; (e) KBrO_3 , 0.73 M H_2SO_4 , 55°C , 3 h, 70%.

FIG. 1

Entry	Substrate	Product	Conditions ^a	% Yield
1	 cis-trans mixture	 cis-trans mixture	1:2, H ₂ O, RT, 18 h	88 ^b
2			1:2, H ₂ O, RT, 18 h	90 ^b
3			1:2, H ₂ O, RT, 18 h	90
4			1:1.5, H ₂ O, 60°C, 3 h	95
5			1:1.5, H ₂ O:THF (5:2 v/v) ^c 60°C, 3 h	79
6			1:1.5, H ₂ O:THF (5:2 v/v) ^c 60°C, 3 h	89
7			1:1.5, H ₂ O, 60°C, 3 h	95
8			1:2.5, H ₂ O, 60°C, 3 h	80
9			1:1.5, H ₂ O:THF (4:3 v/v) ^c 80°C, 3 h	96
10			1:2.5, H ₂ O:THF (3:3 v/v) ^c 60°C, 3 h	81
11			1:1, H ₂ O, 60°C, 3 h	60 ^d
12			1:2 H ₂ O, 60°C, 3 h	94

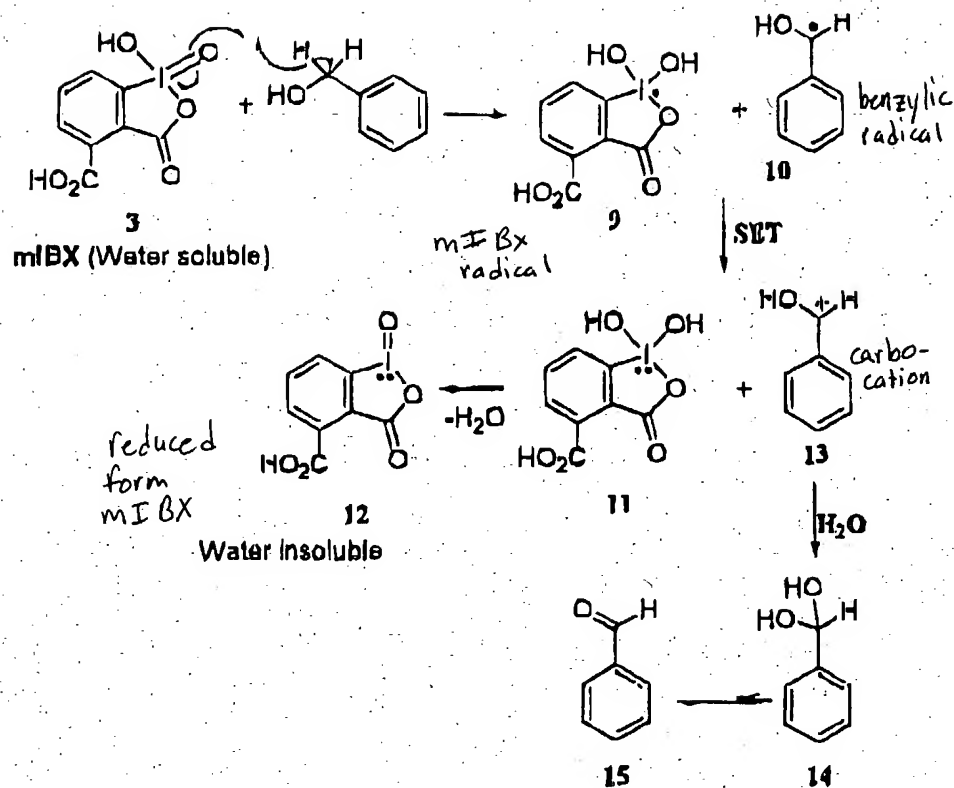
^a Reaction conditions are noted in the following order: Substrate to mIBX ratio, solvent(s), temperature, time

^b The yield reported for entries 1 and 2 are calculated using gas chromatography. The other yields reported in Table 1 are isolated yields.

^c Formation of γ -butyrolactone (~10%), via oxidation of THF, was observed from reactions carried out in the mixed solvent system.

^d Nearly 25% of phenylglyoxalic acid was also isolated from this reaction.

FIG. 2



Mechanism of oxidation of benzylic/allylic alcohols in water using mIBX.

Fig. 3